



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/960,432	09/22/2001	Yong Suk Choi	01-563	5567

7590 12/08/2003

Gregory P. LaPointe
BACHMAN & LaPOINTE, P.C.
Suite 1201
900 Chapel Street
New Haven, CT 06510-2802

EXAMINER

OLSEN, KAJ K

ART UNIT	PAPER NUMBER
----------	--------------

1753

DATE MAILED: 12/08/2003

6

Please find below and/or attached an Office communication concerning this application or proceeding.

cdo 6

Office Action Summary	Application No. 09/960,432	Applicant(s) CHOI ET AL.	
	Examiner Kaj Olsen	Art Unit 1753	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 22 September 2003.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-3 and 6-27 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-3, 6-15, 18, 20-22 and 25-27 is/are rejected.
- 7) ☒ Claim(s) 16, 17, 19, 23, 24 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s). _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

2. Claims 1, 3, and 6 are rejected under 35 U.S.C. 102(e) as being anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Offenbacher et al (USP 6,214,185 B1).
3. Offenbacher discloses a membrane that is a combination of a hydrophilic plasticizer (polyethylene glycol) and a lipophilic polymer (poly vinyl chloride) (col. 5, lines 14-17 and claim 7). With respect to said membrane being a reference electrode membrane, that is only the intended use of the apparatus and the intended use need not be given further due consideration in determining patentability. With respect to the membrane comprising the set forth level of plasticizer and lipophilic polymer, it would have been obvious to one having ordinary skill in the art at the time the invention was made to utilize the claimed ranges, since it has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum or workable ranges involves only routine skill in the art. In re Aller, 105 USPQ 233.
4. Claims 1, 2, 7, and 8 are rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over McNeill (USP 4,781,907).

Art Unit: 1753

5. McNeill discloses a membrane that is disclosed as comprising materials such as cellulose acetate, polyurethane, silicone, and combinations thereof (col. 3, lines 53-65). A combination of cellulose acetate and polyurethane or silicone would read on the claimed combination of porous polymer and lipophilic polymer. With respect to said membrane being a reference electrode membrane, that is only the intended use of the apparatus and the intended use need not be given further due consideration in determining patentability. With respect to the membrane comprising the set forth level of porous and lipophilic polymer, it would have been obvious to one having ordinary skill in the art at the time the invention was made to utilize the claimed ranges, since it has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum or workable ranges involves only routine skill in the art. In re Aller, 105 USPQ 233.

6. Claims 12, 13, and 15 are rejected under 35 U.S.C. 102(e) as being anticipated by Chan (USP 6,416,646 B2).

7. Chan discloses a reference electrode that comprises a polymeric membrane 42 that comprises a combination of polymers including polymers that are known as being porous (e.g. cellulose esters) and lipophilic polymers (col. 10, lines 4-19), an inner reference electrode 36 and 38 positioned in the center of the reference electrode (fig. 1 and 2), an inner reference electrolyte filling the internal space 40 of the reference electrode (paragraph bridging col. 8 and 9), and the membrane is mounted to an end of the electrode (fig. 1 and 2).

8. With respect to the materials utilized for the inner reference electrode and the aqueous solution, see Chan, col. 5, lines 57-67.

Claim Rejections - 35 USC § 103

9. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

10. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

11. Claims 10 and 11 are rejected under 35 U.S.C. 103(a) as being unpatentable over either Offenbacher or McNeill in view of Craig et al (USP 5,958,201).

12. The references set forth all the limitations of the claims, but did not explicitly recite the presence of an adhesion-enhancing agent to the membrane. Craig sets forth in an alternate membrane that the addition of silanes to the membrane improves its adhesion properties (col. 3, lines 50 and 51). It would have been obvious to one of ordinary skill in the art at the time the invention was being made to utilize the teaching of Craig for the membranes of Offenbacher or McNeill to improve the adhesion properties of the membrane. With respect to the particular concentrations of the adhesion-enhancing materials, discovering the optimum or workable ranges involves only routine skill in the art. In re Aller, 105 USPQ 233.

Art Unit: 1753

13. With respect to the particular form of silane utilized. One possessing ordinary skill in the art would recognize that since silane possesses the desirable adhesion-enhancing properties, utilizing the particular forms of silane of claim 11 would require only routine skill in the art.

14. Claims 12-15, and 26 are rejected in the alternative under 35 U.S.C. 103(a) as being unpatentable over Chan (USP 6,416,646 B2) in view of Offenbacher et al.

15. Chan discloses a reference electrode that comprises a polymeric membrane 42 that comprises a combination of a plasticizer and lipophilic polymer (col. 10, lines 4-19), an inner reference electrode 36 and 38 positioned in the center of the reference electrode (fig. 1 and 2), an inner reference electrolyte filling the internal space 40 of the reference electrode (paragraph bridging col. 8 and 9), and the membrane is mounted to an end of the electrode (fig. 1 and 2). Chan does not explicitly disclose any of the set forth plasticizers of claim 12. However, Chan did suggest that any number of unspecified conventional plasticizers can be utilized (col. 10, lines 18 and 19). The previously set forth Offenbacher taught the polyethylene glycol is a conventional plasticizer that can be utilized with lipophilic polymers such as polyvinyl chloride (col. 5, lines 14-17 and claim 7). It would have been obvious to one of ordinary skill in the art at the time the invention was being made to utilize the teaching of Offenbacher for the reference electrode of Chan because the substitution of one known plasticizer for another known plasticizer requires only routine skill in the art.

16. With respect to the materials utilized for the inner reference electrode and the aqueous solution, see Chan, col. 5, lines 57-67.

17. With respect to claim 26, this claim only further limits the electrode of claim 12 when porous polymer is selected from the Markush grouping of claim 12. Because this rejection is

Art Unit: 1753

based on the selection of plasticizer, claim 26 does not further limit claim 12 when plasticizer is selected.

18. Claims 18, 20-22, 25, and 27 are rejected under 35 U.S.C. 103(a) as being unpatentable over Chan in view of Cranny et al (Meas. Sci. Technol. 9 (1998), pp. 1557-1565) with or without the teaching of Offenbacher.

19. Chan (or Chan in view of Offenbacher) set forth all the limitations of claim 18 (see rejections above for claims 12-15, and 26), but did not explicitly set forth an insulating film layer on the substrate. Cranny shows that when the lead for a reference electrode is deposited on top of the substrate (as Chan teaches is known (col. 5, lines 13-21)), it is desirable to place an insulating film over the electrode lead (fig. 1 and section 3.1). This would prevent any electrical shorting of the electrode and would prevent the electrode lead from acting as an electrode itself thereby confining all electrochemical interaction to the area about the hydration port. It would have been obvious to one of ordinary skill in the art at the time the invention was being made to utilize the teaching of Cranny for the electrode of Chan (with or without Offenbacher) in order to prevent the electrode lead from contributing to the electrical signal from the electrode.

20. With respect to the membrane comprising the set forth level of porous and lipophilic polymer, it would have been obvious to one having ordinary skill in the art at the time the invention was made to utilize the claimed ranges, since it has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum or workable ranges involves only routine skill in the art. In re Aller, 105 USPQ 233.

21. With respect to the substrate material, Cranny teaches the use of alumina (fig. 1).

Art Unit: 1753

22. With respect to claim 27, see the discussion above for claim 26 which also applies to this claim.

Allowable Subject Matter

23. Claims 16, 17, 19, 23, 24 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

24. The following is a statement of reasons for the indication of allowable subject matter: the prior art set does not disclose nor render obvious all the limitations of claims 12 or 18 and further comprising the use of the set forth hydrogel being fixed to the membrane or as the inner reference electrolyte.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Kaj Olsen whose telephone number is (703) 305-0506. The examiner can normally be reached on Monday through Thursday from 7:00 AM-4:30 PM. The examiner can also be reached on alternate Fridays.

If attempts to reach the examiner are unsuccessful, the examiner's supervisor, Mr. Nam Nguyen, can be reached at (703) 308-3322.

When filing a fax in Group 1700, please indicate in the header "Official" for papers that are to be entered into the file, and "Unofficial" for draft documents and other communications with the PTO that are not for entry into the file of this application. This will expedite processing

Application/Control Number: 09/960,432

Page 8

Art Unit: 1753

of your papers. The fax number for regular communications is (703) 305-3599 and the fax number for after-final communications is (703) 305-5408.

Any inquiry of a general nature or relating to the status of this application should be directed to the Group receptionist, whose telephone number is (703) 308-0661.

A handwritten signature in black ink, appearing to read 'Kaj K. Olsen', with a long, horizontal, wavy line extending from the end of the signature.

Kaj K. Olsen
Patent Examiner
AU 1753
December 3, 2003